

I. Listing of Claims

1. (Currently Amended): ~~[[An]]~~ A unitary electrohydraulic clutch assembly comprising, in combination,

an input member and a coaxially disposed output member defining an axis,

a bi-directional electric motor having an output hub,

means for inhibiting back driving of a said electric motor associated with said output hub and having an output,

a gear train having an input driven by said ~~electric motor~~ inhibiting means output and an output,

a ball screw driven by said gear train output and driving a first piston displacing hydraulic fluid,

~~a second~~ an annular piston disposed on said axis and translated by said hydraulic fluid, and

a friction clutch pack disposed on said axis and operably disposed between said input member and said output member and actuated by said second piston.

2. (Cancelled).

3. (Currently Amended): The electrohydraulic clutch assembly of claim ~~[[2]]~~ 1 wherein said inhibiting means includes a wrap spring disposed within a cylindrical passageway and extending between ~~a drive~~ said output hub and ~~a driven pinion~~ said inhibiting means output.

4. (Original): The electrohydraulic clutch assembly of claim of 1 further including a pressure sensor for providing a signal representing a pressure of hydraulic fluid generated by said first piston.

5. (Original): The electrohydraulic clutch assembly of claim 1 further including a microprocessor having an output adapted to bi-directionally drive said electric motor.

6. (Original): The electrohydraulic clutch assembly of claim 1 wherein said friction clutch pack includes a first plurality of clutch plates coupled to said input member and a second plurality of clutch plates interleaved with said first plurality of clutch plates and coupled to said output member.

7. (Original): The electrohydraulic clutch assembly of claim 1 further including a circular apply plate and a thrust bearing both disposed between said second piston and said friction clutch pack.

8. (Currently Amended): ~~[[An]]~~ A unitary electrohydraulic clutch assembly comprising, in combination, an input member shaft and a coaxially disposed output member shaft defining an axis,

an electric motor,

a gear train for reducing an output speed of said electric motor,

means for inhibiting back driving of said electric motor operably disposed between said motor and said gear train,

a master piston,
a rotary motion to linear motion transducer ~~operably~~ driven by said electric
~~motor~~ gear train and driving said master piston,
a friction clutch pack operably disposed between said input ~~member~~ shaft and
said output ~~member~~ shaft including first and second interleaved pluralities of clutch
plates disposed on said axis, and
[[a]] an annular slave piston in fluid communication with said master piston,
disposed on said axis and acting upon said friction clutch pack.

9. (Cancelled).

10. (Cancelled).

11. (Original): The electrohydraulic clutch assembly of claim of 8 further
including a pressure sensor for providing a signal representing a pressure of
hydraulic fluid generated by said master piston.

12. (Original): The electrohydraulic clutch assembly of claim 8 further
including a microprocessor having an output for bi-directionally driving said electric
motor.

13. (Currently Amended): The electrohydraulic clutch assembly of claim 8
wherein said ~~friction clutch pack includes a first plurality of clutch plates~~ is coupled to

said input member shaft and ~~[[a]]~~ said second plurality of clutch plates ~~interleaved~~
~~with said first plurality of clutch plates and~~ is coupled to said output member shaft.

14. (Original): The electrohydraulic clutch assembly of claim 8 further including a circular apply plate and a thrust bearing both disposed between said slave piston and said friction clutch pack.

15. (Currently Amended): ~~[[An]]~~ A unitary electrohydraulic clutch assembly for motor vehicle drivelines, comprising, in combination,

a bi-directional electric motor having an output hub,

a wrap spring disposed within a cylindrical passageway and extending between said output hub and a drive pinion,

a gear train having in input driven by said ~~electric motor~~ drive pinion and an output, said gear train having at least two pinion gears and two, larger spur gears,

a ball screw assembly driven by said output of said gear train,

a first piston bi-directionally translated by said ball screw assembly,

~~a second~~ an annular piston in fluid communication with said ~~master~~ first piston

~~[[and]],~~

a friction clutch pack having an input and an output and acted upon by said second piston, and

a circular apply plate and a thrust bearing both disposed between said annular piston and said friction clutch pack

16. (Cancelled).

17. (Cancelled).

18. (Currently Amended): The electrohydraulic clutch assembly of claim 17 wherein said ~~inhibiting means includes a wrap spring disposed within a cylindrical passageway and extending between a drive hub and a driven pinion, wherein said drive hub and said driven pinion including~~ include a coupling accommodating limited relative rotation.

19. (Original): The electrohydraulic clutch assembly of claim of 15 further including a pressure sensor for providing a signal representing a pressure of hydraulic fluid generated by said master piston.

20. (Original): The electrohydraulic clutch assembly of claim 15 further including a microprocessor having an output adapted to bi-directionally drive said electric motor.

21. (Original): The electrohydraulic clutch assembly of claim 15 wherein said friction clutch pack includes a first plurality of clutch plates coupled to said input member and a second plurality of clutch plates interleaved with said first plurality of clutch plates and coupled to said output member.

22. (Original): The electrohydraulic clutch assembly of claim 15 wherein said output of said friction clutch pack provides drive torque to a differential in a motor vehicle driveline.

23. (Cancelled).